

ACTIVE STABILIZATION SYSTEM BLEEDING - GENERAL PROCEDURES

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GENERAL PROCEDURES

SPECIAL TOOL(S)

	204-591-01 Dynamic Response Bleed Bottle
	JLR-204-591-03 Adaptor, Dynamic Response Bleed Bottle

PART(S)

STEP	PART NAME	QUALIFICATION	QUANTITY
Adjustment Step 20	Stabilizer bar link retaining nut(s)		1

This is a "Trustmark Authoring Standards (TAS) Repair Procedure"

TAS style procedures can be identified by steps that have no accompanying step text and the magenta color of the electrical connectors and fasteners such as nuts, bolts, clamps or clips.

TAS removal and installation procedures use a sequence of color illustrations to indicate the order to be followed when removing/disassembling or installing/assembling a component.

Many of the **TAS** procedures will have the installation information within the removal steps.

The **TAS** color illustrations use a variety of symbols to indicate important details of the procedures. It is important to understand these symbols in order to properly used the TAS procedures.

Refer to "How to Use TAS Procedures" and "TAS Symbol Glossary" at Vehicle | Description and Operation for additional information on these **TAS** procedures.

ADJUSTMENT



CAUTION:

Dynamic response system (DRS) components are manufactured to very precise tolerances. It is therefore essential that absolute cleanliness is observed when working with these components. Always install blanking plugs to any open orifices or lines. Failure to follow this instruction may result in foreign matter ingress to the DRS.



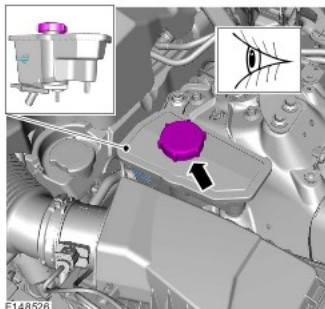
NOTES:

- The first part of this procedure should be completed if the following components have been removed: suction hose, pump, high pressure hose, cooler, cooler return to reservoir. The full procedure is required if the following components have been removed: front or rear valve block to actuator pipe assemblies, or the valve block. It is

possible to bleed only the front or rear of the system if only a stabilizer bar has been removed.

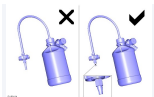
- If the vehicle has had low fluid level and there is a possibility that the car has been driven in this condition, then air is likely to have moved into the secondary circuit and a full system bleed is required.
- Within the special application for DRS in the approved Jaguar Land Rover diagnostic equipment there are 2 routines for bleed.
- 1. Manual bleed is the primary function that should be used in conjunction with the bleed bottle. Its function is to open the safety control valve (SCV) and proportional direction controls valves (PDCV) so that fluid can flow through the valve block to the actuators.
- 2. Auto bleed can be used to displace air that is trapped within the valves/valve block that has not been displaced by the manual bleed process, it will not remove air from the actuator or actuator pipes.
- For front actuator removal or replacement use Steps 1-12, 14 and 17-20.
- For rear actuator removal or replacement use Steps 1-10, 13-14 and 21-24.
- Primary circuit bleed:

1.



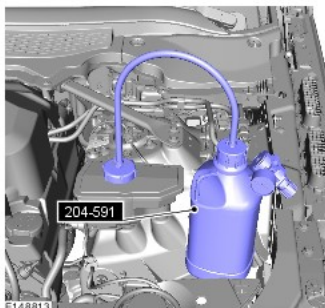
Check and top-up the dynamic response system fluid reservoir. Then squeeze the suction hose (feed hose to pump from reservoir) several times to displace air that may be trapped under the fine mesh of the reservoir suction side filter.

2.



Install the new adapter to the Dynamic response bleed bottle.

3.



NOTE:

Install the special tool to the dynamic response reservoir. Section 2 to 4 is only required if the reservoir has been drained and or pump /suction hose has been changed.

- Completely fill the reservoir with fluid.
 - Make sure the pressure regulator on the special tool is turned OFF.
 - Fill the special tool bottle approximately three-quarters full with fluid.
 - Connect the special tool to a suitable workshop air supply.
 - Using the special tool pressure regulator, carefully increase the air pressure to approx. 0.3 - 0.7 Bar (5 - 10 PSI).
- Special Tool(s): 204-591-01 , JLR-204-591-03*

4.

Start engine and run for 1 minute.

5.



WARNING:

The special tool is still pressurised when the source air pressure is removed. Release air pressure within special tool slowly before removing. Remove the special tool from the dynamic response system reservoir.

6.

Check that there is fluid circulating in the reservoir and stop engine. Then squeeze the suction hose (feed hose to pump from reservoir) several times to displace air that may be trapped under the fine mesh of the reservoir suction side filter.

7.

Run the engine, stopping and starting several times. Each time allow the air bubbles to settle out of the fluid in the reservoir and then squeeze the suction hose to release any trapped air. This is to encourage any air trapped in the primary circuit to be expelled by the reservoir. For suction hose, pump, high pressure hose, cooler, cooler return to reservoir, the removal and installation process is now complete. Make sure that the fluid level is set to maximum line and move to step 34 Hydraulic self-test, otherwise move to step 8.

8.

Raise and support the vehicle using a suitable 2 post ramp. For additional information, refer to: Lifting (100-02 Jacking and Lifting, Description and Operation)

9.



NOTE:

Follow manual bleed procedure where the following components have been removed: Valve block, front or rear valve block to actuator pipe assemblies, or actuator.

For secondary circuit bleed steps 1 to 7 must have been completed first, install / re-attach the special tool as per step 2 of adjustment.

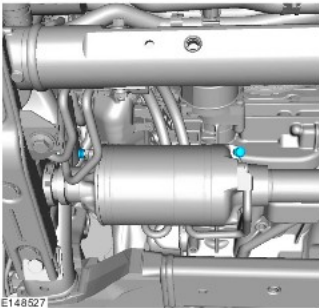
10.

Connect the approved Jaguar Land Rover diagnostic equipment and navigate to dynamic response special application manual bleed.

11.

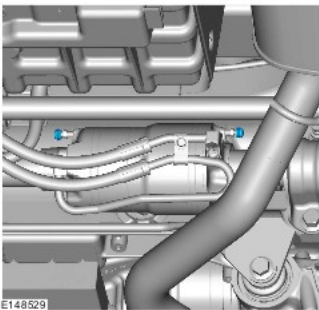
Remove the engine undershield. For additional information, refer to: Engine Undershield (501-02 Front End Body Panels, Removal and Installation)

12.



Remove the front bleed screw covers and connect to a suitable bleed hoses and jars to the bleed screws.

13.



Remove the rear bleed screw covers and connect to a suitable bleed hoses and jars to the bleed screws.

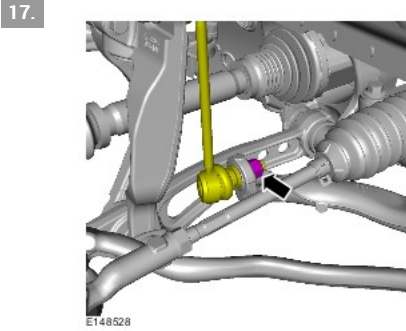
14.

Start manual bleed in approved diagnostic tool, this will open the safety control valve (SCV) and move the proportional direction control valves (PDCV) to the correct position.

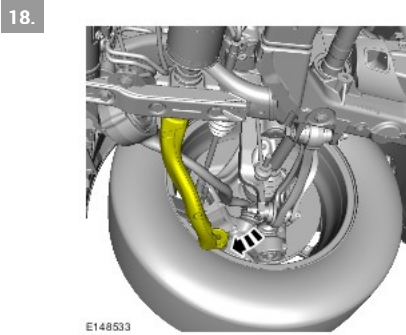
15. For valve block or pipe removal and replacement, open all four actuator bleed screws by half a turn.

16.  **CAUTION:**
The dynamic response bleed tool fluid reservoir must remain full with new, clean fluid, at all times during bleeding.

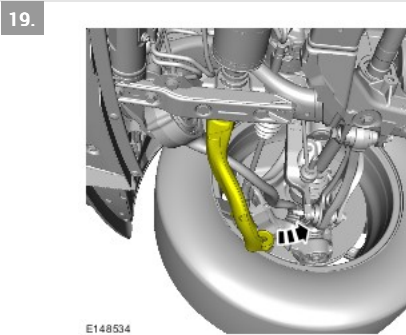
Bleed the dynamic response system until a flow of clean, air-free fluid is being pumped into all 4 bleed jars and close bleed screws.



Remove and discard the front right side lower stabilizer bar link nut.

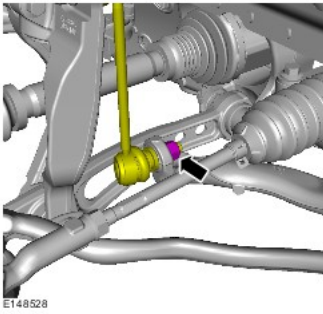


Open the right bleed screw and stroke the right arm fully down. Allow fluid to run for a further 5 seconds. Close bleed screw.



Open the left bleed screw and stroke the right arm fully up. Allow fluid to run for a further 5 seconds. Close bleed screw.

20.

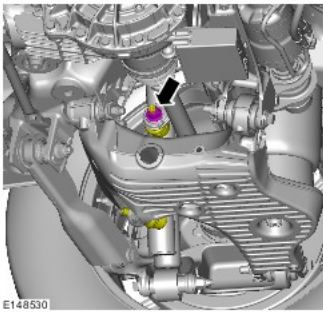


Install and tighten a new front right side lower stabilizer bar link nut.

Renew Part: Stabilizer bar link retaining nut(s) Quantity: 1.

Torque: 185 Nm

21.

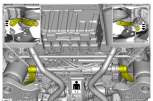


NOTE:

Right side illustration shown, left side is similar.

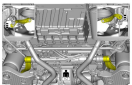
Remove and discard both the rear upper stabilizer link nuts.

22.



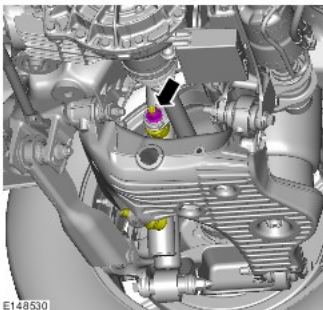
Open the right bleed screw and stroke the right arm fully down and left arm up. Allow fluid to run for a further 5 seconds. Close bleed screw.

23.



Open left bleed screw and stroke the right arm fully up and the left arm down. Allow fluid to run for a further 5 seconds. Close bleed screw.

24.



**NOTE:**

Right side illustration shown, left is similar.

Install and tighten 2 new stabilizer bar link nuts.

Renew Part: Stabilizer bar link retaining nut(s) Quantity: 2.

Torque: 185 Nm

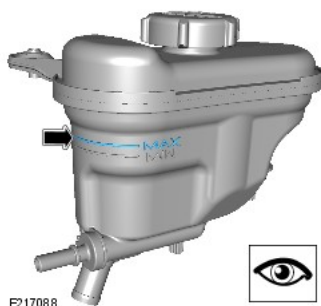
25.

**WARNING:**

The special tool is still pressurized when the source air pressure is removed. Release air pressure within special tool slowly before removing. Remove the special tool from the dynamic response system reservoir.

Stop the manual bleed in approved JLR (Jaguar Land Rover) diagnostic tool and check the bleed.

26.



- The fluid level should be set to the **"MAX"** line with the fluid at 20°C.
- With the fluid temperature at normal operating temperature 50-70°C the level may be 10-15mm above this mark. Topping up at normal operating temperature should take account of this. Do not remove fluid to achieve the **"MAX"** level when the fluid is at normal operating temperature.

27.

The fluid level should be checked with engine off and engine on, any significant drop (more than 5mm below MIN level) indicates trapped air in the system. If the fluid level drop is significantly greater than 5mm, a system re-bleed from step 2 will be required.

28.

- Check front bleed:
- Disconnect only one front stabilizer link. Stroke the arm up and down, free play travel should be less than ± 10 mm. If greater than ± 10 mm travel observed and/or spongy feeling, a system re-bleed will be required.
- Install and tighten a new stabilizer link nut.
Renew Part: Stabilizer bar link retaining nut(s) Quantity: 1.
Torque: 185 Nm

29.

- Check rear bleed:
- Disconnect only one rear stabilizer link. Stroke the arm up and down, free play travel should be less than ± 10 mm. If greater than ± 10 mm travel observed and/or spongy feeling, a system re-bleed will be required.
- Install and tighten a new stabilizer link nut.
Renew Part: Stabilizer bar link retaining nut(s) Quantity: 1.
Torque: 185 Nm

30.

Repeat steps 14-25 if required.

31.

- Check all bleed screws are fully closed.
Torque: 15 Nm
- Install the bleed screw covers.

32.

Install the engine undershield. For additional information, refer to: Engine Undershield (501-02 Front End Body Panels, Removal and Installation)

33.

If the valve block has been replaced run the auto bleed procedure from within the approved Jaguar Land Rover diagnostic equipment to release air that may be trapped in the block. This requires the engine to be running. Using the approved JLR (Jaguar Land Rover) diagnostic equipment clear pressure sensor adaptive data.

34. Using the approved Jaguar Land Rover diagnostic equipment complete hydraulic system response test to confirm correct system operation.

35. Drive the vehicle for approximately 15 minutes performing maneuvers which energize the system and include wheel inputs.